



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5  
77 WEST JACKSON BOULEVARD  
CHICAGO, ILLINOIS 60604**

**SUBJECT:** CLEAN AIR ACT INSPECTION REPORT  
Great Lakes Gas Transmission Station #5, Cloquet, Minnesota

**FROM:** Jacob Herbers, Environmental Engineer  
AECAB (MI/WI)

**THRU:** Sarah Marshall, Section Supervisor  
AECAB (MI/WI)

**TO:** File

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**BASIC INFORMATION**

**Facility Name:** Great Lakes Gas Transmission Station #5

**Facility Location:** 3471 Brandon Rd., Cloquet, Minnesota 55720. Within the Fond du Lac Band of Lake Superior Chippewa Reservation. (46.785811, -92.701318)

**Date of Inspection:** September 14, 2022

**EPA Inspector(s):**

1. Jacob Herbers, Environmental Engineer
2. Emma Leeds, Environmental Engineer

**Other Attendees:**

1. Mark Bonitz, Maintenance, TC Energy

**Contact Email Address:** mark\_bonitz@tcenergy.com

**Purpose of Inspection:** Investigate compliance with the facility's Clean Air Act Title V Permit and perform full compliance evaluation of facility on Tribal lands.

**Facility Type:** Gas pipeline compressor station

**Regulations Central to Inspection:** 40 CFR Part 63 Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines, 40 CFR Part 60 Subpart GG - Standards of Performance for Stationary Gas Turbines, and 40 CFR Part 71 - Federal Operating Permit Programs.

**Arrival Time:** 14:00 CDT

**Departure Time:** 15:20 CDT

**Inspection Type:**

- ☐ Unannounced Inspection
- ☒ Announced Inspection

**OPENING CONFERENCE**

- ☒ Presented Credentials
- ☒ Stated authority and purpose of inspection
- ☒ Small Business Resource Information Sheet not provided. Reason: Not a small business
- ☒ Provided CBI warning to facility

The following information was obtained verbally from Mark Bonitz unless otherwise noted.

**Process Description:**

TC Energy Corporation owns Great Lakes Gas Transmission (GLGT). GLGT operates two pipelines that deliver natural gas from the Canadian border in northwest Minnesota, to the Canadian border in southeast Michigan. GLGT operates a gas compressor station (Station #5) at the Cloquet, Minnesota location. Station #5 operates three gas-fired turbines/compressors: Turbine 501 with a rated capacity of approximately 25,000 horsepower (hp), Turbine 502 with a rated capacity of 14,000 hp, and Turbine 503 with a rated capacity of 16,000 hp. The turbines at the stations run as needed to provide motive force for 24/7 gas flow through the two pipelines simultaneously, although they can and do occasionally provide force to each pipeline separately (split lines). There is a common header between the two pipelines right before the compressors. There is also one gas-fired standby emergency electrical generator on-site. All four of these units run with gas from the pipelines. There were three blowdown valves/stacks outside the pipelines, and three smaller ones for startup and shutdown.

**Staff Interview:**

The gas pressure, interior and exhaust gas temperatures, lube and hydraulic oil levels, and fuel consumption of each turbine are monitored onsite by the Station's two employees between 7:00-15:30 Monday-Friday, and monitored remotely 24/7 by a control center in Houston, Texas. The Houston Control Center can shutdown/startup units remotely, including emergency shutdowns if the monitored pressure is reading too high. Additionally, there are gas leak monitors and spark monitors in each turbine room, and the generator room, which are monitored both onsite and by the Houston Control Center. Alarms will go off once the methane concentration reaches 10%, and 40% lower explosive limit, which hasn't happened once in several years. Once the alarm sounds, they shut down the turbine and vent the space. Nitrogen oxide (NOx) levels are monitored by contractors. GLGT previously performed sulfur testing on the turbine fuel but stopped in recent years.

The hours of operation and fuel use of the turbines are tracked in GLGT's internal system. The maintenance schedule of the turbines is dictated by the hourly operation of the turbines and workorders are automatically generated by GLGT's internal system. The employees conduct daily walk-through inspections to check pressure, temperature, and oil levels of each turbine. At the time of inspection, Turbines 501 and 503 were operating, and Turbine 502 was not running.

Turbine 502 hasn't run in two years aside from annual test runs, and when it does, they run split lines. Sometimes they only run either Turbine 501 or Turbine 503. Oil for the turbines and generator is changed as needed, based on oil sampling performed every year in the Spring. GLGT also check spark plugs and the other mechanical parts annually. Fresh air intake filters are changed every five years. GLGT has not made any major modifications to the facility in the past two years and don't plan to, but have recently replaced the Turbine 501 demister, which exhausts emissions from oil vapor.

Monthly maintenance test runs are conducted on the emergency electrical generator for approximately one hour per month. The generator was not running at the time of inspection. It would automatically start up upon loss of commercial power and would only power the lights and support systems, not the compressors.

GLGT stated they don't do any trainings for emissions testing. Operator qualifications are needed before emissions testing. GLGT personnel was not aware of any air permit trainings. GLGT stated they don't do the Title V checklist form anymore, and that they weren't aware of any permit deviations recently.

## **TOUR INFORMATION**

**EPA Tour of the Facility:** Yes

### **Data Collected and Observation:**

EPA did not observe any visual emissions or leaks. EPA inspectors observed a plume shadow on the ground from Turbines 501 and 503. EPA took notes of various pressure gauge readings from each operating turbine. EPA observed a noticeable fossil fuel-like odor outside Turbine 501. EPA observed drip marks on an oil tank by Turbine 502.

**Photos and/or Videos:** were taken during the inspection.

**Field Measurements:** were not taken during this inspection.

## **RECORDS REVIEW**

EPA inspectors reviewed GLGT's generator log for its hours of regular maintenance and emergency operations for 2019-2022. There were 10.7 maintenance hours logged in 2022 so far, and 15.2 in 2021. There were no emergency hours logged since 2019.

## **CLOSING CONFERENCE**

☒ Provided U.S. EPA point of contact to the facility

### **Requested documents: (9/13/22)**

- Current maps including the area immediately surrounding the stations, identifying all sources of air emissions owned or operated by TC Energy.
- A list of all appliances that use class I and class II refrigerants at both sites, including a brief description of the appliance, its location at the facility, its refrigerant capacity in

pounds, and the maintenance records since March 2021. Maintenance records include refrigerant additions, repairs, repair locations, leak inspections, and leak rate calculations.

- Semiannual reports submitted since March 2021, as well as the total time when monitoring required by the permits was not performed during the reporting periods.
- All reports of deviations from emission and operating limits from Stations 4 and 5 emission units that have occurred since March 2021. This shall include, but is not limited to, the date on which each deviation occurred, either the total duration of each deviation indicated by such monitoring or the actual records of deviations, the probable cause of such deviations, and any corrective actions or preventable measures taken as required by 40 C.F.R. § 63.6650.
- Most recent NOx performance tests report as required by 40 C.F.R. § 60.8, including all appendixes, for EU 002 at Station 4 and EU 001 and EU 003 at Station 5.
- Records pertaining to nitrogen content monitoring in the fuel combusted in the turbine for Compressor Station No. 4, and nitrogen content determinations of the fuel, since March 2021, as required by Section 3.9 in the Station 4 Title V Permit.
- Records specifying the maximum total sulfur content of the fuel at both sites since March 2021.
- Records of maintenance conducted on the emergency stationary Reciprocating Internal Combustion Engine (RICE) units EU 003 (Station 4) and EU 004 (Station 5) since March 2021, including oil and filter changing, spark plug inspections and replacements, hose and belt inspections and replacements, engine startup times, and continuous operation and maintenance plans.
- Hours of operation of RICE units EU 003 and EU 004 recorded through the non-resettable hour meter since March 2021, including how many hours were spent for non-emergency and emergency operations.
- Information on any financial arrangements with another entity involving RICE units EU 003 and EU 004, including the name and addresses of other entities, description of the financial agreement, and hours of operation as a result of the financial arrangement.
- Records of fuel consumption for Station 5 EU 001 and EU 003 since March 2021.
- All records of trainings required by the permits.

### **DIGITAL SIGNATURES**

Report Author: \_\_\_\_\_

Section Supervisor: \_\_\_\_\_

**Facility Name:** Great Lakes Gas Transmission Station #5  
**Facility Location:** 3471 Brandon Rd. Cloquet, Minnesota 55720  
**Date of Inspection:** September 14, 2022

#### **APPENDIX A: DIGITAL IMAGE LOG**

<b>1. Inspector Name:</b> Emma Leeds	<b>Archival Record Location:</b> Region 5 Electronic Records Center
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<b>Image #</b>	<b>File Name</b>	<b>Date &amp; Time</b>	<b>Description of Image</b>
1	P9140082.JPG	2022:09:14 14:39:57 CDT	Turbine 501 outside air intake
2	P9140083.JPG	2022:09:14 14:40:02 CDT	Turbine 501 outside air intake
3	P9140084.JPG	2022:09:14 14:41:39 CDT	Turbine 501 engine
4	P9140085.JPG	2022:09:14 14:42:42 CDT	Turbine 501 pressure monitors
5	P9140086.JPG	2022:09:14 14:48:51 CDT	Turbine 501 outside air intake filters
6	P9140087.JPG	2022:09:14 14:50:16 CDT	Accidental picture of the ground outside
7	P9140089.JPG	2022:09:14 14:54:07 CDT	Turbine 502 oil tank, they may have painted over leaks
8	P9140090.JPG	2022:09:14 14:55:54 CDT	Turbine 502 turbine
9	P9140091.JPG	2022:09:14 14:58:19 CDT	Turbine 503 enclosure
10	P9140092.JPG	2022:09:14 15:00:46 CDT	Turbine 503 pipes and ducts
11	P9140093.JPG	2022:09:14 15:04:44 CDT	Turbine 503 stack, top half replaced last year, no visible emissions
12	P9140095.JPG	2022:09:14 15:09:20 CDT	Blowdown stacks
13	P9140096.JPG	2022:09:14 15:13:22 CDT	Emergency generator

#### **APPENDIX B: DIGITAL VIDEO LOG**

<b>1. Inspector Name:</b> Emma Leeds	<b>Archival Record Location:</b> Region 5 Electronic Records Center
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<b>Video #</b>	<b>File Name</b>	<b>Date &amp; Time</b>	<b>Description of Video</b>
1	P9140088.MOV	2022:09:14 14:50 CDT	Turbine 501 plume shadow on ground
2	P9140094.MOV	2022:09:14 15:06 CDT	Turbine 503 plume shadow on ground